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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,927	07/05/2003	Scott Contini	018926-011310US	4691

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EXAMINER	
DO, CHAT C	

ART UNIT	PAPER NUMBER
2193	

DATE MAILED: 05/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/613,927	CONTINI ET AL.	
	Examiner	Art Unit	
	Chat C. Do	2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 July 2003 and 05 December 2003 and 09*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07/05/03* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *02/09/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

The applicant is advised to update information cited in the "cross-references to related application" section in specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-32 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-32 cite a method, computer-readable medium, and apparatus for performing an average of operands according to a mathematical algorithm. In order for claims to be statutory, claims must either include a practical application or a discrete, useful, and tangible result. However, claims merely cite steps of performing average of two numbers. The input is a set of number and the output is an average those numbers. The claims do not include either a practical application at useful end or a tangible result. In addition, the computer-readable medium is not tangible as clearly indicate in the specification page 50 paragraph 141. Therefore, claims 1-32 are directed to non-statutory subject matter.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-32 are rejected under 35 U.S.C. 103(a) as being obvious over Dijkstra (U.S. 6,795,841) in view of Nagano et al. (U.S. 6,084,907).

Re claim 1, Dijkstra discloses in Figures 1-3 a method for achieving an averaged result on packed binary values (e.g. abstract and Figure 1), the method using an averaging instruction that computes an average on first and second sets of packed values to produce

a resulting set of packed averages (e.g. col. 1 lines 22-68), the method comprising successively applying the averaging instruction to packed values to produce a result, D, that is an approximate desired result (e.g. Figures 1 and 3 as (a+b)/2); and adjusting D to be in a predetermined relation to a desired exact result (e.g. masking [AEORB] with the result to compute the final result of averaging as seen in Figure 3). Dijkstra fails to disclose the result of average is used in a finite impulse response operation. However, Nagano et al. disclose in column 11 lines 30-55 and column 12 lines 58-63 that an average function is used in the FIR filter. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to apply and use the average function in the FIR filter as seen in Nagano et al. because it would enhance the FIR filter by reducing the error in updating coefficient (e.g. col. 11 lines 47-53 and col. 12 lines 59-63).

Re claim 2, Dijkstra further discloses in Figures 1-3 the predetermined relation to a desired exact result includes ensuring that D is no more than the desired exact result (e.g. Figure 3 with the second column wherein A and B are 5 and 13 respectively the result is 9 and col. 3 lines 19-22).

Re claim 3, Dijkstra further discloses in Figures 1-3 the predetermined relation to a desired exact result includes ensuring that D is no less than the desired exact result (e.g. Figure 3 with the second column wherein A and B are 5 and 13 respectively the result is 9 and col. 3 lines 19-22).

Re claim 4, Dijkstra further discloses in Figures 1-3 the predetermined relation to a desired exact result includes ensuring that D is within a predetermined threshold of the desired exact result (e.g. mask(AEORB) col. 3 lines 19-22).

Re claim 5, Dijkstra further discloses in Figures 1-3 the step of adjusting D includes a substep of adding a constant value to D (e.g. 38 as adding the result of mask(AEORB) in Figure 3).

Re claim 6, Dijkstra further discloses in Figures 1-3 the constant value includes 1 (e.g. first column wherein mask(AEORB) is 0001).

Re claim 7, Dijkstra further discloses in Figures 1-3 the substep of adding the constant value to D further comprises using a saturated add (e.g. Figure 3).

Re claim 8, Dijkstra further discloses in Figures 1-3 comprising determining a correct least significant bits of a desired exact result (e.g. masking unit and col. 2 lines 30-36).

Re claim 9, Dijkstra further discloses in Figures 1-3 determining an error amount for D; and adjusting D in accordance with the error amount (e.g. col. 2 lines 30-45).

Re claim 10, Dijkstra further discloses in Figures 1-3 the step of adjusting D includes a substep of subtracting a constant value from D (e.g. 36 as subtracting the result of mask(AEORB) in Figure 3).

Re claim 11, Dijkstra further discloses in Figures 1-3 the constant value includes 2 (e.g. masking is placed in the second bit instead of 1).

Re claim 12, Dijkstra further discloses in Figures 1-3 the substep of subtracting the constant value from D further comprises using a saturated subtract (e.g. Figure 3).

Re claim 13, Dijkstra further discloses in Figures 1-3 determining a correct least significant bits of a desired exact result (e.g. AEORB in Figure 3).

Re claim 14, Dijkstra further discloses in Figures 1-3 determining an error amount for D; and adjusting D in accordance with the error amount (e.g. col. 2 lines 30-36 and mask(AEORB) in Figure 3).

Re claim 17, Dijkstra further discloses in Figures 1-3 D is adjusted to be an exact desired result (e.g. col. 2 Figure 3).

Re claim 18, it has same limitations cited in claim 1. Thus, claim 18 is also rejected under the same rationale as cited in the rejection of rejected claim 1. Further, Dijkstra further discloses in Figures 1-3 the average is performing using SIMD instruction (e.g. col. 1 lines 22-38).

Re claim 21, it has same limitations cited in claim 2. Thus, claim 21 is also rejected under the same rationale as cited in the rejection of rejected claim 2.

Re claim 22, it has same limitations cited in claim 3. Thus, claim 22 is also rejected under the same rationale as cited in the rejection of rejected claim 3.

Re claim 23, it has same limitations cited in claim 4. Thus, claim 23 is also rejected under the same rationale as cited in the rejection of rejected claim 4.

Re claim 24, Dijkstra further discloses in Figures 1-3 he predetermined relation to a desired exact result includes adjusting the adjusted packed value result to be closer to the desired exact result (e.g. Figure 3 by adding or subtracting the adjust factor as mask(AEORB)).

Re claim 25, it has same limitations cited in claims 5-6. Thus, claim 25 is also rejected under the same rationale as cited in the rejection of rejected claims 5-6.

Re claim 26, it has same limitations cited in claim 7. Thus, claim 26 is also rejected under the same rationale as cited in the rejection of rejected claim 7.

Re claim 27, it has same limitations cited in claims 10-11. Thus, claim 27 is also rejected under the same rationale as cited in the rejection of rejected claims 10-11.

Re claim 28, it has same limitations cited in claim 13. Thus, claim 28 is also rejected under the same rationale as cited in the rejection of rejected claim 13.

Re claim 29, it has same limitations cited in claim 14. Thus, claim 29 is also rejected under the same rationale as cited in the rejection of rejected claim 14.

Re claim 31, it is a computer-readable medium claim of claim 18. Thus, claim 31 is also rejected under the same rationale as cited in the rejection of rejected claim 18.

Re claim 32, it is an apparatus claim of claim 18. Thus, claim 32 is also rejected under the same rationale as cited in the rejection of rejected claim 18.

7. Claims 15-16, 19-20, and 30 are rejected under 35 U.S.C. 103(a) as being obvious over Dijkstra (U.S. 6,795,841) in view of Nagano et al. (U.S. 6,084,907), as applied to claim 1 above, and further in view of the admitted prior art.

Re claim 15, Dijkstra in view of Nagano et al. do not disclose in Figures 1-3 the averaging instruction includes a PAVG instruction. However, the admitted prior art discloses the PAVG instruction (e.g. page 4 lines 7-20). Therefore, it would have been obvious to a person in the art at the time the invention is made to add PAVG instruction

as seen in the admitted prior at into Dijkstra in view of Nagano et al.'s invention because it would enable to produce the result efficiently (e.g. page 4 paragraph 16).

Re claim 16, Dijkstra in view of Nagano et al. in further view of the admitted prior art do not disclose in Figures 1-3 detecting when a PAVG operation would be applied to two same operands and, if so performing the step of omitting application of the PAVG operation and using one of the same operands values as the result of the PAVG operation. However, the examiner takes an official notice that the step of detecting when a PAVG operation would be applied to two same operands and, if so performing the step of omitting application of the PAVG operation and using one of the same operands values as the result of the PAVG operation is obvious. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add a step of detecting when a PAVG operation would be applied to two same operands and, if so performing the step of omitting application of the PAVG operation and using one of the same operands values as the result of the PAVG operation because it would enable to increase the system performance by reducing the step of computing the average.

Re claim 19, it has same limitations cited in claim 15. Thus, claim 19 is also rejected under the same rationale as cited in the rejection of rejected claim 15.

Re claim 20, it has same limitations cited in claim 15. Thus, claim 20 is also rejected under the same rationale as cited in the rejection of rejected claim 15.

Re claim 30, it has same limitations as cited in claim 16. Thus, claim 30 is also rejected under the same rationale as cited in the rejection of rejected claim 16.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. U.S. Patent No. 6,889,242, to Sijstermans et al. disclose a rounding operations in computer processor.

b. U.S. Patent No. 6,512,523 to Gross discloses an accurate averaging of elements using integers averaging.

c. U.S. Patent No. 6,007,232 to Wong discloses a calculating the average of two integer numbers rounded towards zero in a single instruction cycle.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The examiner can normally be reached on M => F from 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaki Kakali can be reached on (571) 272-3719. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C. Do

TUAN DAM
SUPERVISORY PATENT EXAMINER

Examiner
Art Unit 2193

May 10, 2006